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THOMAS G. NEWMAN,
EDITOR.

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EDITORIAL BUZZINGS.

The Honey Exhibit at the St. Joseph, Mo., Fair was a very grand one, and exceeded in magnificence that of last year. The Rev. Emerson T. Abbott captured premiums amounting to $110. Of the other premiums we are not yet advised.

Hon. A. B. Cheney, of Sparta, Mich., is running on one of the tickets as candidate for Governor of that State. Mr. Cheney is a very enthusiastic bee-keeper, as well as an influential and honored gentleman.

Feed the Bees in such a manner as to prevent robbing. A good feeder is worth many times its cost as a prevention of robbing. If there is danger of such, contract the entrance so that only a single bee can pass. This will enable the bees to defend their hives against intruders.

A Change of Time.—Owing to the Quincy celebration, the next meeting of the Union Bee-Keepers' Association will be held at the Town Hall in Clayton, Ills., on Tuesday and Wednesday, Oct. 16 and 17, commencing at 10:30 o'clock on Tuesday.

Susquehanna Co., Convention.—H. M. Seeley, of Harford, Pa., on Sept. 14, 1888, announces the following change in the date of meeting of this bee-convention :

Owing to the 8th day of September being a very wet day, the Susquehanna County Bee-Keepers' Association postponed their meeting until Oct. 6, 1888, when it will be held at Montrose, Pa., the same as before, with the same programme and at the same hour.

Not a "Corner!"—The daily papers are very fond of stating that there is a "corner on honey down in New York," and then they invent incredible stories about that "corner" or "trust." Mr. G. H. Knickerbocker, of Pine Plains, N. Y., writes us as follows on this subject :

I enclose a clipping credited to the *Farm, Field and Stockman* of Chicago. This is another illustration of the fact that some newspaper men get a "hint," and then build up a big lie, and the bigger the lie the faster they will copy it. I have written to the editor asking him to retract these statements, as they do our association great injustice by grossly misrepresenting our motives and intentions.

Will you please publish the clipping and also the enclosed circular letter, which will show how utterly false these charges are? We work only for the greatest good to the greatest number, and in the interest of dealers as well as producers.

Here is the item to which Mr. Knickerbocker alludes :

A MELLIFLUENT TRUST. — The latest thing in trusts reported is a combination of honey-producers, in session at Utica, N. Y. The producers present claim an annual output of over 5,000,000 pounds of comb honey, and 1,000,000 pounds of the extracted product. The large producers propose to establish uniformity of shape, size, and style of the packages for the coming year, the price to be charged to the wholesale dealers, and a plan for uniformity of action to prevent the cheapening competition which has marked the honey sale during the past. A trust to be composed of all the large producers in the State is proposed, nominally to regulate the size of combs, so as to unify the marketable packages, but actually to buy up all the surplus honey when there is a glut of production, so as to keep up the price and shut out competitors who might be willing to sell at a sacrifice.

It is hardly probable that this mellifluous syndicate will unify all, or even a majority of the bee-men of the United States, in a scheme to corner the honey-market, at least so long as honey remains as a high-priced luxury in the principal markets of the country.—*Farm, Field and Stockman.*

The following is the true account concerning the formation of the Honey-Producers' Exchange, being an official document from the Secretary :

PINE PLAINS, N. Y., April 26, 1888.

At the convention of the New York Bee-Keepers' Association, held at Utica, Jan. 17, 18 and 19, 1888, a committee composed of John Aspinwall, C. G. Dickinson, A. I. Root, and P. H. Elwood, was appointed to draft a scheme looking to the organization of an Inter-State Association, which should not be confined to any one section, but should, in the *broadest sense*, be a benefit to its reporters and members all over the United States.

This committee made the following report, which was adopted :

Your committee would suggest that this Association shall resolve itself into a Honey Producers' Exchange, for the purpose of gathering statistics of the wintering of bees and the honey crop throughout the United States.

Resolved, That the duties of the Secretary of this Association shall be the forwarding of suitable blanks to reporters, so that they shall report on the first day of May, June, July, August and September from every honey-producing State. No State to have more than six reporters, who shall fill them out and send by return mail to the Secretary. He shall have the reports printed and mailed to members and reporters by the 10th of each month.

Resolved, That the Secretary keep account of his time involved in this work, and report the same at the next convention. He shall be empowered to draw upon the Treasurer for funds necessary to carry out the work.

This organization is to be a secret one, and the statistics obtained are not to be made public, but are for the exclusive use of the members and reporters of this Honey Producers' Exchange. To obtain reliable statistics (per centage of loss in wintering, honey crop, per centage of increase, quantity of honey on the market, prices offered, etc., etc.) will require the hearty co-operation of intelligent reporters throughout the United States. The advantages of these statistics are too plain to every honey-producer and dealer to require any elaboration here. We would only say that if you know the honey crop, the market is yours, and you can secure prices in keeping with the amount of honey which you know is on the market.

On the last of April, May, June, July and August postal-cards with a set of questions to be answered on them and returned *at once*, will be sent to each reporter, and the compiled report will be sent out by us on the 10th of each month.

Others who desire these reports can have them by sending us one dollar, which will make them members of the Exchange, and also of the New York State Bee-Keepers' Association.

G. H. KNICKERBOCKER, *Sec.*

All the newspaper sensations about "corners" and "trusts" having nothing else to rest upon than the above—which is only a system of "gathering statistics of the wintering of bees and the honey crop throughout the United States!" Just that and nothing more! Will the newspapers now as readily copy the facts as they did the falsehood?

Another Bee-Keeper Gone.—Mr. F. A. Snell, of Milledgeville, Ills., on Sept. 13, 1888, wrote as follows concerning the death of a lady bee-keeper :

Mrs. Catherine Hendrick departed this life on Sept. 12, 1888. She leaves a husband and four children to mourn her death. She was 44 years old, and her disease was cancer. Mrs. Hendrick, though not an extensive bee-keeper, was one of our most successful ones. In her well-managed apiary she kept only pure Italian bees. She used the modern improvements in hives and surplus receptacles, and was well informed, having read numerous work on bee-culture. Mrs. Hendrick was a true Christian, and was loved by all who knew her. She had kept bees for 10 years, and had resided here 31 years.

The Preserving qualities of honey are immense. The best hams are cured with honey, and pears and apples are often preserved in honey. In fact, honey has the quality of preserving for a long time in a fresh state anything that may be laid in it or mixed with it, and to prevent its corruption in a far superior manner to sugar ; thus many species of fruit may be preserved by being laid in honey, and by this means will obtain a pleasant taste, and give to the stomach a healthy tone. One who has once tried it will not use sugar for preserving fruit.

GLEANS OF NEWS.

Nebraska Bee and Honey Show.—The bee-keepers of Nebraska are progressive and pushing—always in the lead in every enterprise which will do honor to the pursuit.

About a month ago Mr. J. N. Heater, Secretary of the State Association, sent out circulars to the bee-keepers of Nebraska, the first paragraph of which reads thus:

The Board of Managers of our State Fair Association have very generously appropriated $600 to be used in erecting permanent quarters for the exhibition of bees, honey and apiary supplies at our State Fair, and in accordance it is expected that the bee men and women of the State will turn out and bring a liberal share of their product for exhibition until this new building shall be filled until we shall even surprise ourselves. Thousands of people from the East will visit our coming State Fair, and the light exhibit heretofore has impressed them with the idea that we were not producing much honey in this State, while the opposite has really been the fact, and it has only been our neglect to show this product that has caused this impression. Now that new and ample quarters are to be furnished us in which to make an exhibit, let us, as bee-keepers of the State, unite to see how well we can fill these new quarters, and show to those who visit our coming State Fair, what a lot of sweet things we are producing here in Nebraska.

The result of this appeal to the bee-keepers is thus stated by the Lincoln *Journal* in its report of the Fair:

When Supt. Whitcomb of the department of bees, honey and apiary goods asked the Board for a new building, he agreed that it should be filled the first year. The promise has been faithfully kept. The new structure is so full of exhibits that it is with difficulty that the spectators find room to stand while they are observing the many interesting features of the exhibit.

The present display, Mr. Whitcomb says, is larger than of all previous years combined, and Mr. Whitcomb ought to know. Cases and jars and vessels of all kinds are filled with the most luscious honey. There are cords of apiary goods with here and there an exhibition colony of bees, not including the seven hives out in the bee-yard.

The first display encountered on entering the building is that of Mrs. J. N. Heater, of Columbus. This exhibit includes comb honey to the amount of 500 pounds, and 200 pounds of extracted honey, bee-hives, extractors, plants and all kinds of bee-keepers' supplies. The exhibit occupies the front half of the building. It is tastefully arranged, and attracts no end of attention.

Special credit should be given this year to the bee-men of the State, who have sent in a large number of samples of their product. There is not so much from the vicinity of Lincoln as one would expect, but the remainder of the State has done well, and will do better in the future.

M. Tower, of Lincoln, shows one case of comb honey, two gallons of extracted honey, and one colony of bees.

Almon Tower, of Lincoln, shows the same amount, smokers, and 2 colonies of bees.

Geo. F. Warren has two cases of comb honey.

Henry Patterson, of Humboldt, exhibits two cases of comb honey, and 100 pounds of extracted honey.

Mrs. E. Whitcomb, of Friend, shows 20 pounds of fine granulated honey.

A. V. Kouba, of Crete, has a case of comb honey and 15 gallons of extracted honey, 2 nuclei colonies, queens, foundation mill, and foundation, and one colony of bees.

Ernest Bose, of Pleasant Dale, has a case of comb honey.

Mrs. E. J. Watterman, of Milford, has a case of comb honey.

Thos. Dobson, of Germantown, has extracted honey, one colony of bees.

W. P. Dakin, of Lincoln, shows one colony of bees.

J. E. Rose, of Friend, shows a case of comb honey and five gallons of extracted honey.

An exhibit that fills nearly half of the building is made by E. Kretchmer, of Coburg, Iowa. This is not a Nebraska exhibit, but Coburg is but a few miles from the border, and the State can almost claim the display, which includes 300 different articles in the line of bee-supplies alone, embracing everything relating to practical bee-culture; some 23 volumes on bees and honey, including nearly all the literature of the subject, two of the books being written by Mr. Kretchmer; a full colony of Italian bees in working order, and a colony of bees in a revolving observatory hive; 600 pounds of honey in jars, pails, bottles and receptacles of all kinds, and also in the comb.

The hives in the yard were weighed yesterday morning, and the increase for two weeks was found to be as follows: A. V. Kouba, 74 pounds; M. Tower, 65 pounds; A. Tower, 60 and 15, the bees from the latter hive having gone home; Thos. Dobson, 40 and 42 pounds; W. P. Dakin, 13 pounds, these bees also having returned to their old location.

The building—the exhibit—the honey—the implements—*all* are very creditable to the apiarists of that youthful State; and should stir up apiarists in older States to be "up and doing" something to their credit in the line of exhibiting their product.

Columbus.—We do not refer to the discoverer of America, but to the capital city of the State of Ohio, where the next meeting of the North American Bee-Keepers' Society is to be held on Oct. 3 to 5—NEXT WEEK. Dr. Mason, writing from the grounds, has this to say to those intending to go to Columbus, which should be read by all who intend to go:

Most of those who will attend will be within the reach of reduced rates to the Ohio Centennial Exposition. Let each one intending to attend the convention inquire at his railroad station about rates to the Centennial; and if there is no reduction from that station, buy a round-trip ticket to the nearest large town or city, and there buy a round-trip ticket to the Centennial. Most if not all such tickets will have a ticket attached that will give one admission to the Centennial Grounds. If the holder does not care to use it, it can be disposed of for what it cost. I do not know the rates from New York, Toronto, St. Louis, Chicago, Louisville, etc., but excursions are coming every week. Fare from Toledo, to Columbus, O., (124 miles) is and will be $2.50 round trip.

No reduced rates for board and lodging have been made as yet; but good meals can be had for 25 cents, and lodging for from 25 cents and up. It has been customary to get reduced rates at what are called first-class hotels, and the rates are frequently such that only a few take advantage of them, the remainder preferring to secure equally good accommodations at other hotels and boarding-houses at cheaper rates, so that the social part of the convention is divided.

The convention will meet in the State House, in the hall of the House of Representatives, at 11 a.m., Oct. 3, and I shall try to be prepared to refer all delegates to good lodging and boarding places, at rates that will best suit their pocket-books, and then all can make the place of meeting "headquarters" for the social part.

We have interviewed the Passenger Agent, at Chicago, of the Pennsylvania Lines (Pan Handle route), and he informs us that application has been made for reduced rates for the Bee-Keepers' Convention, and a rate of 1⅓ fare has been granted. Tickets can be obtained at any station on that route, on Sept. 29 and 30, and Oct. 1 and 2, by purchasing a full-fare ticket to Columbus, O., and obtain with it a certificate from the agent of such purchase. This certificate must be counter-signed at the Convention by its Secretary, and upon presentation of this certificate, the ticket agent at Columbus, O., will sell the return ticket at one-third fare.

The fare from Chicago to Columbus is $9.20, and trains leave Chicago at 10:30 a.m. and 8:30 p.m.

Read these particulars carefully, for if not strictly followed, no reduction can be obtained.

Fresh Viands or Hash!—The following is from a valued correspondent to the AMERICAN BEE JOURNAL, but as he did not indicate whether it was for publication, or only for the Editor's private reading, we omit his name. He wrote us something about the new edition of Prof. Cook's Manual, and what it said about Mr. Cheshire and his book. Upon receiving our reply, he wrote us as follows:

Lest you may misunderstand me about the Cook and Cheshire controversy, I will just say that I am inclined to think that Prof. Cook is *correct* when he says Cheshire's Bee-Keeping is a "compilation." It is a magnificent compilation, however, and a most beautiful book.

I cannot help but meditate upon the destruction of idols. William Tell, whom boys have so often tried to imitate, has gone; Shakespeare is laid on the shelf; Pocahontas is no more; Captain John Smith and Miles Standish rest under suspicion; and now this atmosphere of doubt pervades the bee-keeper's sanctum, and clothes him with uncertainty as to whether he may be feasting on fresh viands, or only after all subsisting on hash.

As between Cook and Cheshire I shall tie to the American at all hazards, until proper treaties are established.

If authors and inventors could forget pecuniary interest, and seek only for that which is right, best, and true, the funeral expenses of jealousy could be well afforded.

That the beautiful volumes of Mr. Cheshire's "Bees and Bee-Keeping" are under ban, is true; but their elegance, like charity, covers a multitude of sins! As a work of art—as a triumph of the printer's art, both in "letter press" and engraving—as a full and complete treatise on the subject, the work is a master-piece, and stands unexcelled and unapproachable in any Country, clime or language. We admit that it is marred by jealous flings, inexcusable errors, and uncredited cullings, but these we charge up to human weakness and frailty.

CONVENTION DIRECTORY.

1888 *Time and Place of Meeting.*

Sept. 25, 26.—Cedar Valley, at Cedar Falls, Iowa.
J. J. Owens, Sec., Waterloo, Iowa.

Sept. 26.—Progressive, at Newburg, O.
Miss Dema Bennett, Sec., Bedford, O.

Oct. 3-5.—North American, at Columbus, O.
W. Z. Hutchinson, Sec., Flint, Mich.

Oct. 4.—Ohio State, at Columbus, O.
Frank A. Eaton, Sec., Bluffton, O.

Oct. 6.—Susquehanna County, at Montrose, Pa.
H. M. Seeley, Sec., Harford, Pa.

Oct. 16, 17.—Union, at Clayton, Ills.
S. N. Black, Pres., Clayton, Ills.

Nov. 21, 22.—Pan-Handle, at Wheeling, W. Va.
W. L. Kinsey, Sec., Blaine, O.

Dec. —.—Michigan State, at Jackson, Mich.
H. D. Cutting, Sec., Clinton, Mich.

☞ In order to have this table complete, Secretaries are requested to forward full particulars of time and place of future meetings.—ED.

SELECTIONS FROM OUR LETTER BOX

When Buckwheat Yields, etc.—H. M. Seeley, Harford, Pa., on Sept. 14, 1888, writes:

I saw in the BEE JOURNAL a short time ago, the request to know if buckwheat yielded all day, or only in the morning. When we have a hot, damp and cloudy day, it yields nectar all day; all other times only in the morning. It has not yielded very much this season. My report for the season is as follows: From 7 colonies in the spring, I have taken 170 pounds of honey, and increased them to 13 colonies. I took 155 pounds of the honey from 2 colonies.

Bee-Keeping in Florida.—N. C. Larsen, Cleveland, Fla., on Sept. 10, 1888, writes:

My 10 colonies of bees are in splendid condition, with plenty of stores. I am trying to learn the seasons and honey-flows here, and have not taken any more than about 10 gallons of honey in all, for home use. I expect to get considerable honey the coming winter and spring. Our main flow, I think, is from pennyroyal, which blooms during the winter, and saw palmetto, which blooms during the spring months. However, if I can have honey enough for home use, I will be satisfied, considering my outlay thus far.

Yellow Fever in Florida.—John Craycraft, of Altoona, Fla., on Sept. 12, 1888, writes as follows concerning the trouble in Florida:

The orange crop is fine and large, and will be a great income to the people here. But we are all in prison, as it were. A guard is across the whole line of the State to keep us in like criminals. We can ship nothing out of the State, and our mail matter is all defaced and detained. We are in a part of the State where there has not been a case within 50 miles of us, and we are treated like criminals, if we attempt to leave the State. There is no objection to a strict quarantine on Jacksonville, but to treat us all alike, and for the authorities that be, to pen up in a camp, women and children with negroes and roughs, as is done, is more than is pleasant. Such outrages are far worse than the "fever." There are a number of cities in the North that have offered their hospitality to the afflicted city of Jacksonville, and for its people to come to them, but the "powers that be" would not let them leave, but have kept them in pens "like thieves," to sicken and die, so that they could carry out their "theory," or kill in the attempt. We have plenty to eat, and things are allowed to come into the State, but nothing we have can go out in exchange but cash, and that will not last long. I cannot get along without the BEE JOURNAL, if our honey crop is small this year; we must know what others are doing.

Golden-Rod and Wild Asters.—Rev. S. Roese, Maiden Rock, Wis., on Sept. 10, 1888, says:

We are having a nice flow of honey from golden-rod and wild asters. My bees are doing finely, and if frost holds off two weeks more, they will be in fine condition for wintering. I have extracted 1,400 pounds, and taken off 600 pounds of comb honey—a happy disappointment since my last report. The bees are still working lively, and all are equally strong for winter.

P. S.—Sept. 14.—We had a hard frost last night. I will prepare my bees for winter.

Buckwheat Yielding Honey.—H. M. Moyer, Hill Church, Pa., on Sept. 15, 1888, says:

Mr. S. J. Youngman, on page 563, asks if buckwheat yields nectar all day, or only in the forenoon. In this locality (Berks Co.) the bees work only in the forenoon, and I think also in other places. Hardly a bee could be seen on it in the afternoon. My experience is with common Silverhull and Japanese buckwheat. The Silverhull has the most blossoms, and is longest in bloom, but the Japanese is a good yielder for grain.

Sweet Clover and Buckwheat.—D. F. Park, Athens, Pa., on Sept. 13, 1888, writes:

The opening of white clover found my 80 colonies well stocked with bees, but nearly destitute of honey. The honey-flow was light, so that I took off only 12 cases of white honey. This was secured by taking out the outside frames and putting on cases with empty combs. By shaving the thickest edge with a hot knife, it was capped as white and even as from foundation. Sweet clover, of which we have a great abundance along our rivers, comes into blossom before the close of white clover, when bees forsook the latter, and filled the sections with the sweet clover honey, thus spoiling many cases that would otherwise have been white. I think that sweet clover is much overrated as a honey-plant. Buckwheat has yielded fairly, so that I shall have 40 cases of sweet clover and buckwheat honey combined. I have had but 4 swarms this season. Last season's average was 35 pounds per colony, which was small; however I shall realize more money this year, as I shall not repeat the experiment of sending my honey to a city commission house, getting returns of 6 cents per pound for nice buckwheat honey! It don't pay.

A Modern BEE-FARM, and its Economic Management; showing how bees may be cultivated as a means of livelihood; as a health-giving pursuit; and as a source of recreation to the busy man. By S. Simmins. For sale at this office. Price, $1, postpaid.

Bees and Honey at the Woonsocket, R. I., Fair attracted considerable attention in the Harris Hall. The *Patriot* thus describes it:

Harris Hall looked quite gay at night when lighted, all the articles on all the tables showing up to good advantage.

One of the most attractive as well as instructive features of the hall display is that made in the Apiarian Department by Samuel Cushman, of Pawtucket. If any one desires to realize these lines of Watts, he or she would do well to visit the hall:

"How doth the little busy bee
Improve each shing hour,
And gather honey all the day
From every opening flower."

There are collections of bees of the Syrian, Austrian and Italian species. The Italian-hybrids can be seen in a working glass-covered hive, "busy as bees," forming cells, storing honey, collecting pollen, spreading wax or carrying out dead bees. A wire work tube is connected with the hive and extends to an opening in a front window of the hall. Through this the bees pass out during the day for the purpose of collecting honey, and when loaded, will return and go through the process of storing what they have obtained, in doing so showing their art in the distribution of honey, wax and pollen. The queen-bees can be seen in the other hives producing eggs, while they are surrounded by hundreds of working bees, all busy, not one for an instant idle. There is certainly a grand lesson of industry, skill and perseverance to be learned from these bees. Their owner understands his business well, and knows all about bees.

Besides the bees, this gentleman also exhibits honey in the comb, extracted honey and winter hives.

Among other contributors C. F. Tarbell exhibits sixty varieties of asters.

Convention Notices.

☞ The Pan-Handle Bee-Keepers' Association will hold its next meeting in the K. of P. Hall, on Main St., between 11th & 12th Streets, in Wheeling, W. Va., on Nov. 21 and 22, 1888. All bee-keepers are cordially invited. W. L. KINSEY, *Sec.*

☞ The 6th annual meeting, and basket picnic, of the Progressive Bee-Keepers' Association will be held on Wednesday, Sept. 26, 1888, at the residence of Mr. W. S. Wait, in Newburg, Geauga Co., Ohio. All are invited to be present. DEMA BENNETT, *Sec.*

☞ The Cedar Valley Bee-Keepers' Association will hold its annual meeting at the Council Rooms, Cedar Falls, Iowa, on Sept. 25 and 26, 1888. All who are interested in bees and honey are cordially invited to be present. J. J. OWENS, *Sec.*

☞ The next meeting of the Union Bee-Keepers' Association will be held at Clayton, Ills., on Tuesday and Wenesday, Oct. 16 and 17, 1888, in the Town Hall at 10:30 a.m. The Park Hotel will charge $1.00 per day; the restaurants 25 cts. per meal. We expect Messrs. Dadant, Hambaugh, Camm and other prominent bee-keepers to be present.
S. N. BLACK, *Pres.*

☞ The Ohio State Bee-Keepers' Association will hold its 6th annual meeting in joint convention with the North American Bee-Keepers' Society at Columbus, O., on Oct. 3, 4 and 5, 1888. A special business session of the Ohio State Bee-Keepers' Association will be held on Oct. 4, to elect officers for the coming year, and for the transaction of other business. This business meeting will not interfere with the regular programme of the National convention of the same day. FRANK A. EATON, *Sec.*

☞ The North American Bee-Keepers' Society will hold its annual meeting on Oct. 3, 4 and 5, 1888, in Representatives' Hall at the capitol in Columbus, Ohio. The Passenger Traffic Associations will grant reduced rates only when 100 persons are present, holding railroad certificates. Owing to the short honey crop it is feared that a sufficient number of persons will not be present holding certificates, and that an attempt on the part of the Society to avail itself of the reduced rates offered by the Passenger Traffic Associations will only result in disappointment; hence it has been decided that the only course open will be to allow each member to shift for himself, or herself, to either take advantage of such excursion rates as may be available in his or her vicinity, buy round-trip tickets, or do something of the sort.
W. Z. HUTCHINSON, *Secretary.*

QUERIES AND REPLIES.

Desirability and Advantages of Reversing.

Written for the American Bee Journal

Query 578.—When is reversing desirable? and what are its advantages?—Penn.

With me, never.—M. MAHIN.

I do not practice it.—J.P. H. BROWN.

I have had no experience.—MRS. L. HARRISON.

I am not sure that it is ever desirable.—C. C. MILLER.

Never, unless you want to compel the bees to move their honey to the supers.—DADANT & SON.

I do not practice it, and cannot see its advantages.—H. D. CUTTING.

Never. It has no advantages except to get the combs fastened to the bottom-bars.—G. W. DEMAREE.

I have never practiced this method, hence I do not know.—J. M. HAMBAUGH.

When the bees are gathering honey to get the frames solid full of comb.—R. L. TAYLOR.

I do not know that I ever found it desirable at any time, nor of any advantage in practice.—P. L. VIALLON.

It seems to be desirable to obtain well-filled frames. Beyond that I doubt if it gives permanent satisfaction.—EUGENE SECOR.

It is never desirable, except once, perhaps, to get the combs built out to the frames all around.—G. M. DOOLITTLE.

I do not think it desirable at any time. I have tested the matter somewhat, and base my opinion upon that experience.—J. E. POND.

1. To get combs fastened to the frames on all sides. 2. To insure against swarms; so my experience says. Others think not. 3. To get the bees into the sections at will, at the dawn of the harvest.—A. J. COOK.

It is desirable when you want the frames filled with comb, and also when the lower part of the combs are filled with brood, and the upper part with honey that you want put into the supers.—A. B. MASON.

After a good honey-flow, when the body of the hive has become too full of honey, the bees will then carry a part of it into the sections.—C. H. DIBBERN.

Oh, now this wants a whole article to answer it, and I have spoken my "piece" in several back numbers; but perhaps it is nearly time to repeat, as there are many new subscribers, and I guess I will do so before long, for reversing is a beneficial practice when properly understood and executed.—JAMES HEDDON.

It is desirable when preparing the bees for the honey harvest; desirable after the gathering begins, as it promotes the habit of carrying the honey to the supers, thus leaving the brood-combs for the use of the queen. The invertible system gives us more bees from an 8-frame Langstroth brood-nest than we can get from a 12-frame non-invertible of the same size.—J. M. SHUCK.

In brief, it may be said to be desirable to *some* when they wish to give the queen the full capacity of the brood-chamber for laying purposes, and when they want to have the frames built out in full all around. These are the main reasons, but some can find no excuse for reversing frames. Like all other questions, this has two sides to it.—THE EDITOR.

Uncapping the Combs of Honey in Extracting.

Written for the American Bee Journal

Query 579.—When extracting, is it best to uncap both sides of the comb before you put it into the extractor? or do you first uncap one side, then extract, and then uncap the other side?—Q.

Uncap both sides.—MRS. L. HARRISON.

Both sides, of course.—R.L.TAYLOR.

Uncap both sides to save time.—DADANT & SON.

Uncap both sides before putting it into the extractor.—A. B. MASON.

Uncap both sides first, and save much time.—A. J. COOK.

Uncap both sides before you place it into the extractor.—J. P. H. BROWN.

I have always uncapped both sides first.—C. C. MILLER.

I uncap both sides before placing the combs in the extractor.—J. M. SHUCK.

Uncap both sides before putting the comb into the extractor.—M. MAHIN.

Uncap both sides always, as it saves extra work.—G. M. DOOLITTLE.

Uncap both sides before putting the comb into the extractor.—J. M. HAMBAUGH.

Uncap from each side before the frame is put into the extractor.—H. D. CUTTING.

I do that way myself. I think you can do it more rapidly that way.—EUGENE SECOR.

Yes, by all means uncap both sides before you put it into the extractor.—P. L. VIALLON.

I always uncap both sides of the comb before I begin to extract either. It is only a matter of dispatch.—JAMES HEDDON.

I always uncap both sides. It is less work, owing to the fact that it will require less handling to do so.—J. E. POND.

Uncap only one side at a time; as the capping helps to strengthen the comb, and keeps it from breaking.—C. H. DIBBERN.

I shave the capping from both sides before the frame is placed in the extractor. It requires less handling of the frames to proceed in this way, and there is not the least inconvenience about it.—G. W. DEMAREE.

It makes a saving of time and trouble to uncap both sides before putting the frame into the extractor; though some uncap one at a time, the great majority uncap both at once.—THE EDITOR.

CORRESPONDENCE.

QUEEN-CELLS.

Do Queens Ever Lay Eggs in Royal Cells?

Written for the American Bee Journal

BY G. M. DOOLITTLE.

I see by the replies to Query 569, that some are still in doubt that a queen ever lays eggs in queen-cells. Formerly there used to be many such, but I had supposed that at this late day and age (after such men as Gallup, Grimm, Shuck and others had testified that they had seen queens deposit eggs in queen-cells), the doubting ones had given up the old theory of the queen hating a rival so badly that she would in no way contribute toward the getting of such an one; but in this I see that I am mistaken.

It seems to me that the way an egg is attached to a queen-cell should be enough to convince any one that none but a queen could so put the egg, occupying the same position that it occupies in a worker-cell.

I never saw a queen in the act of laying in a queen-cell, but my hired man did, which gave me positive proof that what I had long considered as a fact, was a literal truth. God said to all of his creation, after he had made it and pronounced it good, "Multiply and replenish the earth;" then why should not the queen perform her part of this work, as well as the mothers of all else living?

That one queen will kill another, when two come in contact, does not positively argue that the mother-bee should not do her part in keeping the colony provided with a means by which it could exist after she had left with a swarm. What difference could it make with her, after she had left, how many queens sprang up, so long as none of them could possibly harm her?

I am well aware that the workers do once in a great while carry eggs from an ordinary cell to an embryo queen-cell, still this is not done nearly so often as larvæ are so carried, and when eggs are so carried, it is very easily detected by the experienced eye, for they are placed in the cells in almost any shape, save the manner in which the queen does her work.

I once had a strong colony swarm, and before I could get around to do my part of the work, they returned, the queen having her wings clipped. Thinking that I would be all ready for them the next day, I did not try to divide them in the afternoon, as I sometimes do to save time for the swarms of the next day, but left them

as they were. The next day, when they came out again, I was on hand, but before they were fairly out of the hive, another swarm came tumbling out of a very populous hive and went with them.

No sooner were they all in the air, than the whole of them were re-enforced by another swarm from another hive, which I had said was not to swarm that year on account of their having a failing queen. This last hive had been opened an hour previous, and all queen-cells cut off, so as to keep them as I wished for a few days, till I could get some queens fertilized which I had under headway; and one can imagine my surprise and chagrin, when, before this last swarm had got two-thirds out, the whole mass went piling into the hive of the colony that I had determined should not swarm. After a few moments' thought, I concluded to leave them as they were (only I put on section room to the capacity of 100 pounds, or over), to see what would become of it.

The next morning, before 8 o'clock, out they came, and were hived in an empty hive, after giving them one of the good queens which were kept back the day before. Having secured them, and having the old queen, that I had said should not swarm, in a cage, I went to the hive to inspect it before I let her go back in. Now came the greatest surprise of my life in the way of queen-cells, for by turning to my diary I see that by actual count there were 423, 276 of them having eggs and larvæ in, when less than 11 hours before there was not a queen-cell in the hive.

Here was where I first detected the difference between eggs carried to a queen-cell by the bees, and those placed in them by the queen. I decided that 188 eggs had been laid by the queen in these cells, by their being attached by the point to the bottom of the cells, and 17 were carried there by the bees, as they were in all positions in the cells; 71 cells had larvæ, which the bees must have carried there, of course. These larvæ were from two to three days old, as nearly as I could judge, and all of them were literally swimming in royal jelly, as much so as any I ever saw of that age in my life. Here is a point worthy of note for those who claim that no queen can be really good unless started from the egg and fed as a queen.

Since then I have a few times had eggs and larvæ removed from the comb I had given to a queenless colony, to a dry comb at its side; but in all these instances the queen-cells were built first, and the eggs or larvæ deposited in them, the position of the eggs resembling that which I have described above; but as I said near the beginning, the cases are quite rare where either eggs or larvæ are removed from one cell to another, and three larvæ are removed to where one egg is removed; for the bees can get a queen more quickly from the larvæ than from the egg.

The usual way of working in a queenless colony to secure a queen is, to float the royal larva when chosen, out to near the end of the worker-cell in which it is, and when there, turn a queen-cell down over the ends of the cell. Nearly all writers tell us that the bees when made queenless tear down adjoining cells so as to build a queen-cell over the larva which they have selected for a queen; but this is not done once in one thousand times, according to my experience, and not then, unless the combs are new, not having any cocoons in them, or the selected larva is near a hole in the comb, or the edge thereof.

Borodino, N. Y.

GREAT BRITAIN.

No Honey Crop, and the Bees are Starving.

From the British Bee Journal
AUG. 30, 1888.

We think that the season of 1888 may be reckoned as the most disastrous that modern bee-keepers have ever experienced in the British Isles. Flowers have been plentiful, but when in bloom the weather prevented the bees leaving their hives, and also retarded the secretion of the necessary nectar in them. In consequence of this, many colonies at the present time are either starving or bordering on that condition.

Last week we "drove" (bumped) 7 colonies of bees in straw-skeps, the property of a cottager who, in other seasons, has averaged from 15 to 20 pounds of honey per colony. Although the hives were full to overflowing with bees—we took 4½ pounds of bees from one having a super on—the total amount of honey obtained from the 7 colonies was just a trifle over 3 pounds; one of them had commenced to succumb, hundreds lying dead on the floor-board.

The foregoing we take as almost a general average, in our district, of the condition of colonies left entirely to their own resources. At the present time, therefore, the question left for consideration is, will it pay to feed the colonies the quantity of stores necessary for their winter's consumption? With the frame-hive bee-keeper his answer, given we should think without a moment's consideration, will be "yes." Of this there cannot be two opinions, but with the cottager an outlay of (say) four shillings per colony is a consideration; yet it will pay him. Many of these poor folks have all their work cut out for them to make two ends meet with their present earnings, but to expend four shillings per colony, money down, to keep the bees alive, is an impossibility, and so the dying out of such colonies during the coming winter will be most calamitous.

Having satisfied ourselves that "feeding up" is now the only and most remunerative course to pursue, the next question to arise is, What to feed? There is such a variety of sugars on the market that the novice scarcely knows which to choose, and even when he does know the description of sugar, the form in which it is to be given to the bees is a stumbling-block. "Dry sugar feeding," says one; "syrup," says another; "candy," another; "Good candy," a fourth; "place the sugar in a dummy-board," advises a fifth; "No, don't; put it on top of the frames," chimes in a sixth. Well, between all these numerous words of advice he becomes bewildered, and gives the apparent enigma up in despair; and yet each of these advisers is giving sound advice in as far as the different requirements of a colony at a given time necessitate.

A little reflection on the part of the bee-keeper will prove to him that dry-sugar feeding alone during the coming season will be of no use whatever; the food given must be syrup—good, thick, cane-sugar syrup; no washy sugar-and-water—we might almost say, water and syrup. We have for some years tried dry-sugar feeding, and have found it in some cases very useful, but where a colony has little or no natural stores, it has invariably been a failure; times and times have we endeavored to rear condemned bees placed in fully-built combs upon dry sugar, but always failed. A colony at the commencement of winter having 6 or 7 pounds of stores, if fed on dry sugar will die out, or be of little use the next season, but where a colony has just a shortness of stores, barely enough to last it until the following spring, then dry sugar feeding will be invaluable, and so will candy, both ordinary and "Good."

Having then satisfied ourselves that for the present season, at least, syrup feeding is our only resource, it behooves us to consider what sugar to use, how to make the syrup, and how to feed. The first question is, perhaps, of the greatest importance, as the quality of—we cannot call it adulterated—unsuitable sugar for bee-feeding on the market is enormous.

Sugar at the present time is obtained commercially from a variety of vegetable substances; of course those yielding the greatest quantity are chosen before others, and as the beet-root yields 8 per cent. of cane-sugar, it is the principal (after the sugar-cane) vegetable requisitioned to supply the tea and breakfast table. Then again, cane (sugar-cane) sugars, when damaged, or of bad color, are after chemical treatment transformed into good colored and sound samples, and used for admixing with beet-sugar; this description of sugar can be mostly detected by the smell, by an adept by the sight, the chemicals used in the bleaching process, giving a most decided acid odor. The smell of beet-sugar to most people (for our own part, we should say to all people), is most nauseous, but when mixed with other sugars and refined, it loses to a great extent, but not entirely so, this unpleasant odor. Sugars of this description are known in the trade by the term "pieces." When feeding bees sugar should be avoided.

Any respectable grocer will give an applicant the information as to what is, or what is not "pieces." Loaf-sugar, best qualities, are almost free from beet, the best being "Tate's cubes" No. 1 quality, black brand, Martineau's cubes first quality; both of these are in hundredweight square, wood cases. Dutch crushed, sold now in large quantities for preserving purposes, is not to

be recommended, as frequently other than sugar-cane sugars are used in its manufacture. This sugar is packed in bags of about two hundredweight, mostly having a lead seal attached to the mouth of the bag. It is in irregular-shaped pieces of loaf-sugar, together with large quantities of the dust of the same; as its name denotes it is "crushed" loaf-sugar. Other descriptions of loaf-sugar we do not recommend.

Sugars Suited for Bee-Feeding.

We now come to a description of sugar which we have found eminently suited for bee-feeding, not only have we found it useful and suitable in this respect, but we never use any other description upon our table, as its clean sweetening properties are far before loaf and raw sugars. It is called "granulated." When this was first brought before the bee-keeping public, one manufacturer only produced it, Duncan; it then was known by the name of "Duncan's Pearl Sugar." This firm ceased refining, and certain manufacturers in America purchased the royalty, manufacturing and importing large quantities to England packed in barrels of about 238 pounds; unfortunately during the last few months no consignments of this sugar have been received in England. This sugar made a splendid, clear, thick syrup if half-a-pint of water was added to each pound of sugar, and made in the ordinary manner.

The foregoing sugar being now beyond our reach, we have found an excellent substitute for the same in granulated sugar manufactured by two firms, viz., Messrs. Geo. Crosfield & Co., of 6 Stanley Street, Liverpool (registered trade-mark C. in a diamond), and Messrs. Lyle, of Glasgow and London; both of these firms guarantee their granulated sugar as perfectly free from beet. These firms, being refiners, will not supply a private individual, but any respectable grocer will obtain the sugar for a consumer.

Raw sugars, such as Demerara, Barbadoes and Porto Rico, will make very good syrup, upon which the bees will successfully winter, but their color detracts from their merits, as such syrup will stain the combs; this, according to our experience, is the only objection. Demerara sugar is imitated by one firm who color a white crystallized sugar with some material (a trade secret); this sugar can easily be detected by placing a small quantity in the mouth. After sucking a short time, the remainder left in the mouth will be quite white, the act of sucking having removed the coloring matter, which is only superficial. As we do not know what the coloring matter is composed of, we object to its being used in the apiary.

Porto Rico sugar we find the most suitable for dry-sugar feeding, as it is very deliquescent; it also, for feeding on top of the frames, binds together with slight pressure, so forming itself into almost a solid cake. "Good" candy is made by mixing icing sugar with hot honey until of the consistency of putty; this is much too expensive, and on account of the same, suitable only for the food used in queens' traveling cages.

The answer then to the question, What sugar to use in making syrup? will be found to be granulated, guaranteed by the makers to be free from beet. How to make the syrup is answered also in the above paragraph, and will also be found in any modern manual on bee-keeping.

How to Feed Sugar to Bees.

How to feed is then the next question. The ordinary regulating bottle-feeder will be of little service this season; a fast-feeder must be used. There are plenty of these to choose from, and where expense is of little object, any of the boxes with numerous divisions, upon the principle of which most fast-feeders now are made, can be used, but there are other and cheaper methods of making a fast-feeder, the following one we frequently use:

Obtain a tin dish, having almost perpendicular sides; into this place a wood float almost fitting the dish, and having a number of holes, freely dispersed, bored through. We place this on top of the frames, after filling it with syrup, and under the quilts, allowing, by laying pieces of wood across the tin dish, the bees to work up over the edge and take the syrup down. It is not what we call a tidy way of doing it, but it answers as well as the most expensive feeder.

The dish is refilled through the hole in the quilt, and will hold about four pounds of syrup. The quilts must be tucked down snugly all around. A good colony with this feeder can be fed up in about ten days or less, if the weather is warm.

It is very noticeable that beet-sugar is objected to by most bee-keepers, and rightly so. Although beet-sugar is, chemically speaking, cane-sugar, it is vastly inferior in its saccharine properties to sugar made from the sugar-cane. If we place a quantity equal in bulk to what we usually find with sugar-cane sugar sufficient for sweetening a cup of tea, it will be found quite unsuited to our taste, necessitating a further addition of at least one-fourth the original bulk. Bees fed on the same do not winter in at all a satisfactory manner, therefore we think that a knowledge as to where to get a sugar free from beet will be of great service to our readers, and likewise a comfort to the bees through the rigors of the winter of 1888-89.

CALIFORNIA.

The Season and the Sources of Honey.

Written for the American Bee Journal

BY S. L. WATKINS.

The honey crop in El Dorado county, this year, was an average one, being about 50 pounds per colony. The weather has been extremely warm the past month, at Placerville the mercury standing at 100° to 105° almost every day in August. This hot weather and no honey coming in caused the bees to dwindle down rapidly. At the Placerville apiary I lost 40 colonies out of 82.

The Carniolan bees have done the best at Placerville. It is true that they dwindled down considerably, but nothing at all in comparison with the Italians, hybrids and blacks. I have not lost a single colony of Carniolan bees. They are the best bees to defend their hives against robber bees, of any that I have ever seen. Next season I shall keep nothing but Carniolan bees in the Placerville apiary.

I have two apiaries located 14 miles above Placerville in the mountains. At these apiaries all kinds of bees do well. I do not see much difference in regard to the amount of honey stored by each race—black bees do as well as the Italians.

Bees gather the spring crop from alders, willows, maples, dogwood, wild cherry and plum, California lilac, manzanita, chaparall, folocio, pennyroyal, etc. The fall crop is the largest and best, being gathered mostly from the incense cedar, which is a wonderful yielder of honey. The spring crop averages about 30 pounds per colony, and the fall crop sometimes averages 100 pounds per colony.

Bees do not begin to gather honey from the incense cedar until October, and it usually lasts about six weeks. The honey gathered from this source is the thickest that I have ever seen. The bees cap the cells with a snowy whiteness, which gives it a very beautiful appearance. The incense cedar is rich in both pollen and honey, a single tree furnishing enough pollen for the wants of a whole colony.

Placerville, Calif., Sept. 10, 1888.

NECTAR.

Do Bees Hear?—Swarming and Science.

Written for the American Bee Journal

BY G. W. DEMAREE.

There are many questions pertaining to bee-culture that are not directly of practical utility, but interesting nevertheless.

Have Bees the Sense of Hearing?

This is a matter, it seems to me, capable of demonstration. That bees do hear in some *sense* which answers to the sense in which other animals hear, I have every reason to believe. That bees pay no attention to the ordinary din and clash of the outer world about them, proves nothing at all, for the same is true, in a limited sense, with all living creatures.

My grounds are bounded on the one side by a railroad, and from 10 to 14 trains pass by every day. My stock graze in the pasture undisturbed—they rarely ever raise their heads when a train thunders by. The same is true with my bees—they work right along as though all was silent. But if I drop some young bees on the ground, they will find the entrance to the hive if they are in *hearing* distance of the bees at the entrance; if not, they will wan-

der about, crawl into some other hive, or perish in their lost condition.

Sometimes when hiving a swarm, I dip up a cupful of bees and pour them into the prepared hive; they immediately set up a loud "roar," and the swarm promptly *answer;* and they rush into the hive with that joyous hum which thrills the heart of the true lover of bees with joy, that is difficult to describe. Do you say that *vibration* guides the bees, and not *sound?* What is "sound" but an impression made on the *subject* by concussion or vibration of the atmosphere?

To say that sound is not the same thing identically to the insect that it is to animals of higher order, proves nothing, because it cannot be proven that sound is precisely the same thing to the lower animal that it is to the intellectual being. Bees *hear* in a sense which answers all their purposes, and this is all that can be said of other animals.

Selecting a Home before Swarming.

This is an old doctrine. It has age on its side. It had its origin away back in the ages of bat-eyed fogyism as pertains to bees. There is such a touching story here, about the sending out of "scouts" to locate a future home while the swarm waits with patience and hope. There are among these "scouts" some good Joshuas and Calebs—they will bring in a good report.

It is hopeless, perhaps, to try to be an educator along this line. Mr. Youngman, on page 567, publishes a case of "sending out scouts," which appears conclusive to him. But to me it is easy to see what attracted those bees which he took for scouts, "cleaning out a new home." The "chunks of propolis and fragments of comb" adhering to the hollow tree is what attracted the bees there. They were foraging for bee-glue, and doubtless they unwittingly answered as a decoy to the homeless swarm as it passed that way. I once saw a swarm enter an empty hive in my apiary, directed there by the same cause.

No evidence that will bear investigation has ever been published, to warrant the belief that bees locate and "clean up" a home in advance of their taking actual possession.

Honey is Not Digested Nectar.

Since writing the above items the BEE JOURNAL has come to hand, and Prof. Cook's reply to my article on page 568, has been noted. I am as much astonished, and grieved, at the Professor's reply, as he was surprised and pained because of my article. What have I said against "true science" that justifies the heated and spontaneous defense of Prof. Cook? No man has a higher appreciation for what "true ecience" has done for the "nineteenth century," than myself. But vagaries and absurd theories are not science. Against these (not true science) I hurl ridicule, because no other weapon can reach them. True science is not the child of one father nor of one "mother," hence the "base ingratitude" which so *stirs* the Professor is a thing of his imagination.

Yes, "there are more things in heaven and earth" than I ever dreamt of, and the remark is true when I apply it to my honored friend, Prof. Cook, or to any other living man; but I am pretty certain that no man can lift himself by the straps of his boots.

Our learned author says, "that honey is more or less perfectly—what words are these?—digested nectar is as certain as the world is round." This is at par with his dogmatic assertion that, "bees never hibernate." The one as well as the other rests alone on his *Ipse dixit.*

"That all honey is equally digested is very likely not true." Yes, I should think so; and it is a thousand times more safe—more in accordance with the evidence, with reason and common observation—to say that it is not *digested* at all in the meaning of that word when applied to the assimilation of food in the stomach.

I have before me a fancy little card, "Why Eat Honey," sent me by that shrewd and practical apiarist and honey-dealer, Chas. F. Muth. I quote from it as a sample of good commonsense:

"What is honey? It is a vegetable product, not made, but gathered from the nectary of flowers, where it is secreted according to the rules of Nature's laboratory." These commonsense words whet the appetite for honey, while Prof. Cook's "more or less perfectly digested" vomit makes every fiber of my being recoil.

I am not able to make the large reports of great yields of honey as some bee-keepers seem able to do—perhaps my locality will not admit of it; but I had one colony of bees to gather and finish up 300 pounds of the finest quality of honey in less than 30 days. The density of raw nectar varies so much that it is hard to say how many pounds or raw nectar that 300 pounds of standard honey would represent, but certainly not less than 600 pounds of freshly-gathered nectar. Now I say that it would be as impossible for a colony of bees to digest (assimilate) in their stomachs 600, or even 300, pounds of raw nectar in less than 30 days, as it would be for Prof. Cook to lift himself by the straps of his boots.

The presence of invert sugar in honey argues nothing. Chemical changes going on during the process of evaporation is sufficient to account for that.

Christiansburg, Ky.

BOTANICAL.

The Pollination and Perforation of Flowers.

From the Shaw School of Botany,

BY L. H. PAMMEL.

Last spring my attention was drawn to a rather large and conspicuous cluster of *Phlomis tuberosa* growing in the Botanic Garden. The species is a native of Europe, and has become sparingly naturalized in the United States. The pollination of this species seems not to have been studied, although we have an admirable account of the pollination of *Phlomis Russeliana* by Loew. Our species, although agreeing in some important particulars with the Syrian, differs in color and some other minor points.

The structure of the flower clusters is that common to many of the Labiates, in that the flowers are borne in cymose axillary clusters; but in this case the clusters are very dense, so that the flowers are not separated readily. The tubular calyx is 10-ribbed, and terminates rather abruptly in 5 awns.

A plant when in flower is very conspicuous not only from the purple color of the corollas, but also from the number of flowers open at the same time, as there are often as many as six or eight in one cyme; and on going to the flower at any time of the day, one could see several species of *Bombus* and a *Xylocopa* collecting nectar, besides other small Hymenoptera which principally collected pollen. The corolla is decidedly two-lipped. The upper lip arches over the lower, and is slightly notched.

At the time of pollination the upper lip lies close to the lower, so that a humble-bee, on entering the flower, must force the former back, when its thorax is dusted with pollen from the anther cells which lie among the rather numerous hairs in the arched upper lip. This lip readily returns to its former position on account of the elastically-hinged arrangement to be found on its posterior part close to the tube of the corolla. This arrangement is also described by Loew, as occurring in *Phlomis Russeliana*, and has been called by him "Charnier Gelank"....

Insects, attracted by the clusters of bright purple flowers, find a landing-place on the lower lip of the corolla, and experience no trouble in finding the nectar, as there is a well marked groove in the middle and larger lobe of this lip, which diminishes in size downward till the nectary is reached, where it disappears. In addition to this groove there are some nectar marks: two on the middle lobe (one on each side of the groove), add one on each of the lateral lobes. These nectar marks are colored somewhat deeper than the rest of the corolla, and run to the groove, where they disappear.

There is an abundance of nectar, secreted from the well-developed nectar-gland situated immediately underneath the pistil, in the form of a fleshy outgrowth arising from the receptacle. This gland is usually somewhat angled, sending up one lobe between each of the lobes of the ovary....The nectary occupies the lower part of the tube of the corolla, which is considerably enlarged above the nectary; this enlargement is not peculiar to this plant, but is also to be found in others. There is developed at this enlargement a ring of rather stiff hairs, which excludes small insects. The occurrence of a ring of hairs above the nectary is also common to other Labiates....

Pollination by Humble-Bees.

The flowers of *Phlomis tuberosa* are adapted to pollination by humble-bees, as has been shown, by the elastically hinged arrangement in the upper lip,

and the length of the tube of the corolla. Several of our species of *Bombus* must be able to do efficient work in their cross-pollination, as the measurements of their tongues indicate. Mr. Robertson, who has kindly identified the insects I sent him, gives me the following measurements:

The tongue of a female of *Bombus separatus* measured 11 mm., while that of *B. Pennsylvanicus* was 16 mm. long. I frequently saw a large species of *Bombus*, probably *B. Pennsylvanicus*, which entered the flowers in a normal way, and most of the flowers were pollinated by this insect. Besides this there was one other humble-bee, a worker of *B. vagans* (?), which visited the flowers, but mostly those which had previously been used by *B. Pennsylvanicus*. The tongue of this insect measured 6.5 mm., so that it was hardly long enough to reach the nectar, and I doubt whether the insect is strong enough to push the upper lip back; as it regularly visited the older flowers, no doubt it may be of service to the plant.

Anthophora and *Melissodes*, which have longer tongues than those of *Bombus Pennsylvanicus*, are frequent visitors to flowers with deep seated nectar, but they were not noticed on *Phlomis;* on the other hand *Xylocopa Virginica* made perforations and used them exclusively.

The two species of *Phlomis* are much alike in the awn-pointed lobes of the calyx, the hinged arrangement in the upper lip, and the compactness of the flower-cluster. The flowers of *Ph. Russeliana* are somewhat larger, and are therefore adapted only to long-tongued insects, since the tube of the corolla is 22-22 mm. long. But the tube of *Ph. tuberosa* is only 10 mm. long, so that it is adapted to a much larger range of insects. Accordingly Loew found *Ph. Russeliana* visited in the Berlin Botanic Garden only by *Bombus hortorum*, and he says that *Anthophora pilipes* is the only other insect in North Germany which can do adequate service in its pollination.

In both of these species there is a beautiful contrivance for securing cross-pollination. But while the Syrian, according to Loew, is proof against such depredators as *Bombus terrestris*, which perforates many European flowers in order to get at their nectar, *Ph. tuberosa* is not proof against these unwelcomed visitors. Notwithstanding that *Xylocopa* has a tongue of 7-5 mm., and can therefore get at a portion of the nectar in a normal way, it chooses rather to perforate the flowers, the awn-pointed calyx lobes offering no resistance.

The Colors of Flower Species.

But I think the most striking difference between the species is in color, and as this is such an interesting biological fact, I will summarize what Hermann Muller says about it in his classical work "Die Befruchtung der Alpenblumen:"

Not only have Hymenoptera been most active in the development of such peculiar contrivances as the bell-shaped corollas of Convallarias, Campanulas, and Gentians; the funnel-shaped corollas of Rhododendrons and Echiums; the tubular corollas of Loniceras; the closed corollas of Linarias and Antirrhinums; the spurred flowers of Aquilegias and Aconitums: the labiate flowers of Lamiums, Salvias, Melampyrum, and Pedicularis; the inverted flowers with small openings of Arctostaphylos and Vaccinium; and the papilionaceous flowers of Trifolium and Robinia;—but they have also influenced the colors of flowers in a most marked degree. Flowers adapted to a large range of insects, like those of *Compositæ*, *Saxifragæ*, *Valerianaceæ*, *Potentilla*, and *Ranunculus*, are usually yellow or white. But in such highly modified flowers as Lamiums, Salvias, Delphiniums, Aconitums, and Aquilegias, the colors are generally violet, blue, pink, or purple. In these and other genera a change seems to have stepped in, especially where flowers have the same structure and are pollinated by the same class of insects.

Our species of *Monarda* show this color-range beautifully....In Labiates the prevailing colors are blue, rose, lilac, and purple; seldom yellow or white. *Lamium album, however*, is white, while *L. maculatum* is red. *Phlomis tuberosa* is purple, *Ph. Russeliana* is yellow. *Salvia glutinosa* is yellow, *S. pratensis* blue. Why should we have changes in color of such closely related species?

Slight changes in color must therefore be of great use to an insect, just as changes in color of parts of a flower after pollination are of use to the insect by indicating that its services are no longer needed. Muller believes that the changes in color, in closely allied species, have been produced for reasons of this kind.

The Perforation of Flowers.

The perforation of flowers by insects, and in a few cases by birds, to get at the nectar by fraudulent means, is a matter of common observation; but in a few cases this is the normal way of procedure, as has been shown by Darwin and Muller, for insects are obliged to perforate the lax inner membrane of some orchids (nearly all of the British Ophreæ according to Darwin) in order to get the nectar which lies within their tissues; and in the case of *Laburnum*, etc., Muller has shown that insects puncture the thickened bases of the standard petal in order to get nectar. I ought also to call attention to the destructive work of species of *Megachile*, which cut out parts of the petals of roses, pelargoniums, etc., and use them to line their nests.

A century ago, Sprengel noticed that flowers were perforated. Since his time many European as well as American observers have noticed perforations. Among them I may mention Darwin, Delpino, Ogle, Kerner, Loew, and Hermann Muller. To Loew, and especially Muller, are we greatly indebted for painstaking labor in giving lists of flowers and their visitors, and, with the exception of these and a few by other investigators, we have no statistical tables on the pollination of flowers and their insect visitors, so that we have little accurate information as to what insects perforate flowers.

It is of value to know not only that a given flower is perforated, but also what relation the insect bears to the flower which it perforates. It is, indeed, interesting to follow out these relations from Muller's tables....

Darwin, in his "Cross and Self-Fertilization," etc., states that out of many hundred specimens of red clover examined by him, nearly all were perforated, and he has even seen whole fields in the same condition. Thos. Belt and others have noticed the same thing. It is quite as common for red clover to be perforated in this country as it is in Europe....

Italian Bees and the Red Clover.

In the summer of 1883, in the vicinity of La Crosse, Wis., I noticed large numbers of honey-bees on the flowers of red clover, and wondered whether they made perforations, or what they were doing. In some cases they obtained pollen, but in a vast majority of cases nectar was collected through perforations made by some other insect. Among bee-keepers there is a notion that the Italian bee is able to get nectar from red clover. I doubt whether this is true, for in my experience I never found them collecting nectar in the normal way; they seemed to collect only through perforations made by some other insect.

One thing will show, in part at least, why honey-bees go to the red clover at certain times and not on other occasions. It is a well-known fact that the amount of nectar secreted by a plant varies according to season and locality. There are periods, as I have had occasion repeatedly to observe, when hive-bees cannot collect enough to supply their young, and they then freely use the perforations made by *Bombus* and other insects; but when there is an abundance of nectar they pass over fields of red clover, and when *Monarda punctata* is in flower, and has a good supply of nectar, they will pass over fields of white clover, and fly some distance to fields of wild bergamot.

Although the rule seems to be that honey-bees do not perforate flowers, there seems to be exceptions, for no less an authority than Hermann Muller states that they perforate the flowers of *Erica tetralix*, using their mandibles to bite holes in the tube of the corolla. The tongue of the honey-bee is only 6 mm. long, so that it is not able to get the nectar otherwise in these early flowers. Later he found honey-bees collecting nectar in the normal way, but he failed to observe whether these late flowers were smaller or not....

It is not always an easy matter to tell whether an insect makes the perforations, especially when these are in the form of longitudinal slits, or whether it is merely looking for the perforations of some other insect. In flowers where the tissue is firm, these slits close over quite effectively, and are not readily seen. While the honey-bee makes, at most, few perforations, Muller records many cases in which it uses perforations made by other insects; but it is sufficient here to refer to his works for these.

In this country, Meehan believes that the honey-bee perforates the flowers of Salvia Splendens. Delpino, Comes, and a few other observers, also state that the honey-bee perforates corollas. I think, however, that generally honey-bees only use the perforations made by other insects, and they are certainly quick to perceive these perforations. Muller records the most interesting case of Salvia Sclarea, in which the tube of the corolla is so long that the honey-bee is not able to get the nectar in a normal way. It made several attempts, but did not try to perforate the corollas. When, finally, it found

several in which the corollas had just loosened, it immediately began to sip the little drops of nectar which still remained attached to the base of the corolla. It is certainly a clear case, for the insect tried in every way to get nectar, except by perforating the corolla.

The examples of flowers perforated by *Bombus terrestris* show that it mainly pierces those from which it cannot get nectar in a normal way. Muller has found this interesting difference between its visits to flowers on the plains and valleys, and to those of alpine and sub-alpine regions; that while in the lower regions it perforates many flowers where the nectar is in part accessible to it....others are visited in a normal way in alpine regions.

Muller also found a constant difference in the length of its tongue. In the Alps its tongue was usually 8-11 mm. long, while in the lowlands only 7-9 mm. long. *Bombus terrestris* is one of the most abundant of European humble-bees, and this is perhaps one reason why it uses these illegal means to get nectar. But *B. mastrucatus*, as Muller's investigation shows, is the worst enemy to alpine flowers. Notwithstanding that its tongue is of sufficient length to enable it to reach the nectar of some flowers....it perforates them, and only pollinates such flowers as....it could not well perforate unless it were to go to more trouble than getting the nectar in a normal way involves....

Carpenter Bees and Flowers.

The Carpenter bees, belonging to the genus *Xylocopa*, do considerable injury to flowers in more southern latitudes, where they abound.

Xylocopa Virginica, according to Cresson, is found in the middle, southern and western States, and of the 27 species of this genus mentioned in his catalogue, this is the most northern, and has the widest distribution. The species no doubt causes considerable annoyance, as Mann, Ryder, and Miss Murtdfeldt have shown. Mr. Mann was the first to describe one method which it uses to perforate flowers, in which "the insect applies its sharp and wedge-shaped maxillæ to the grooved surface of the tube, and splits this open 3 or 4 mm. from the base."

Dr. Schneck and Mr. Van Ingen each record several cases in which the tube of the corolla had longitudinal slits, but as perforators they found humble-bees (*Bombus?*). As these slits correspond so well to the slits I found on the tube of the corolla of Phlomis, I bring them up in this connection. I frequently found this Xylocopa in the act of making longitudinal slits in the tube of the corolla of Phlomis tuberosa. The insect applies its powerful mandibles against the tube of the corolla until it gains entrance, then, thrusting its maxillæ in as far as it can in a longitudinal direction, the tissue yields easily, so that longitudinal slits are the result. At other times the mandibles are drawn backward and forward, thus causing longitudinal slits. The number of slits varied from one to three. The insect did not take much trouble to find the old slits, but went directly at making new ones, as it seemed to be easier for it to do this than to waste time in looking for the old ones.

Wasps Perforating Flowers.

Wasps also perforate flowers, especially such as are adapted to this class of insects....Mr. Robertson has reported to me several interesting cases where wasps use perforations, and, at least in one instance, make them. At Orlando, Fla., he found five species of wasps, which sucked the flowers through perforations, which are at first very small, but finally large and irregular. At Clinton, Mo., he observed that Odynerus Foraminatus made perforations in the tube of the corolla of Monarda Bradburiana, which, as he thinks, were made by the wasp taking the tube between her jaws and cutting towards the mouth of the corolla, thus loosening a triangular piece which could be closed over the opening. In the Botanic Garden I frequently found the flowers of this species perforated, but the perforations were in the form of longitudinal slits.

While wasps do not generally perforate flowers, they are not above using those perforated by species of Bombus and other insects; for these, in their rapid visits to flowers, are certain to leave some nectar. Insects much lower in the scale than wasps, frequently use the perforations made by species of Bombus, as Muller has shown to be the case in a small Ichneumon fly which eagerly sought the nectar left in the flowers....

Ants and Beetles Gathering Honey.

Ants are especially fond of saccharine matter, and are frequent visitors to flowers, but only for nectar. Their visits are entirely injurious to the plant. They frequently gnaw parts of the flowers, and make irregular holes, thus gaining an entrance, or they use the perforations made by other insects.

Beetles, although not high in the scale of development, and certainly low as far as the adaptation of flowers and their pollination is concerned, show, in a few cases, some ingenuity in getting at nectar, as Muller found to be the case with Cetonia Aurata, which feeds on delicate parts of various flowers, is especially fond of nectar, and was found on the flowers of Convallaria Polygonatum eating its way from the top of the perianth to where the nectar is found at the base of the pistil, where it began to feed on the nectar-secreting gland until the wall of the ovary was reached, when it left the flower.

The acute observer Sprengel found that large numbers of the flowers of Symphytum Officinale were perforated by one of the flower-beetles, and that ants used these perforations. Mr. B. M. Vaughn, who found the flowers of Corydalis Aurea perforated at Madison, Wis., is of the opinion that these perforations were made by one of the flower-beetles.

Birds that Perforate Flowers.

It is not strange that birds should at times perforate flowers, since so many flowers are well adapted to pollination by them. Prof. Trelease mentions that, according to Prof. W. A. Henry, the humming-bird probably perforated the flowers of Tecome Radicans. Dr. Schneck and George Sprang have found these perforated, but the latter found ants gnawing through the corolla. In the Botanic Garden there was hardly a single fully opened flower of this species which did not have a few slits.

Prof. Beal reports that Mr. Hollingsworth found the flowers of Fuchsia pierced through at the base of the calyx-tube and robbed of their nectar. Mr. Robertson writes me that he has seen the humming-bird force its bill into a flower-bud, so that the lobes of the corolla had not been separated, but merely cut through. Prof. Beal watched carefully for two seasons the flowers of the Missouri Currant, seeing large numbers of bees collecting nectar from holes made in the calyx-tube; yet, after careful examination, he has never seen honey-bees make these holes, but several times noticed the Baltimore oriole passing over the bushes and giving each of the fresh flowers a prick with the tip of its beak. No other bird having been seen doing this, he concluded that it is the work of the Baltimore oriole, while the honey-bee takes the gleanings after the oriole.

How Flowers are Perforated.

I have alluded to the manner in which Xylocopa makes perforations; I must also describe how this is done by Bombus and Apis:

The mouth-parts are somewhat complex: the mandibles or upper jaws are developed for the purpose of biting; the maxillæ and labium are brought into use when the bee takes a liquid into its pharynx. The maxillæ are situated on each side of the labium, and consist of a flattened stipe at the base, then the rudimentary maxillary palpi, and from the stipe projects the triangular and deeply grooved lacinia. When the maxillæ are brought close together, a tube is formed which opens into the pharynx. The labium or lower lip consists of a central portion and two pairs of appendages, the paraglossæ and labial palpi. The central portion of the labium is divided into a basal portion, the mentum and a terminal portion, the ligula. "The mentum is hinged to the submentum, which in turn is hinged to the maxillæ by two chitinous rods." The labial palpi are deeply grooved, and when brought together form a tube.

In flying from flower to flower the insect carries its sucking apparatus stretched forward so that it is enabled to put it directly into the flower. The mouth-parts of the bee are held in a similar way when the tender cellular tissue is pierced with the tips of its maxillæ. While many humble-bees are addicted to boring the tubes of corollas, they also resort to bitting the tissues of the flowers by the aid of their mandibles.

Fertility of Perforated Flowers.

The opinion is current that perforated flowers are not as productive as unperforated ones. Delpino has shown that some perforated flowers are absolutely sterile. Ogle states that many

flowers of Phaseolus multiflorus fail to produce seed because of perforations.

I doubt whether there are many flowers in which one can find more perforations than in Symphytum Officinale. In stocks which have several thousand flowers, hardly one can be found which is not perforated. Several stocks in the Botanic Garden gave me ample opportunity of seeing the results from perforated flowers. I did not undertake to count the ripened fruits, but the greater number of flowers developed some nutlets. At this time I had not seen Loew's experiments on this plant. His results are so striking and conclusive that I give them somewhat in detail:

On the 11th of June, 1885, he took several branches which had passed anthesis. On these he had 73 flowers, and was careful to remove later flowers; on the 4th of August, 46 flowers were dry, while the remaining 27 flowers had matured 51 nutlets, so that 37 per cent. of the flowers were more or less fertile.

The full fertility of many plants, as Darwin has shown, depends largely upon cross-pollination. Insects do not commonly visit flowers unless they get nectar or pollen in return, so that, when a flower is constantly robbed, the regular pollinators do not receive their due share of nectar or pollen, their visits are fewer, and consequently there is less chance for cross-pollination. If the plant is capable of self-pollination, seeds may be developed, and often in great abundance, yet Darwin has shown that the progeny of self-fertilized flowers is less vigorous than from cross-fertilized flowers.

If the structure of a flower is such that self-fertilization is prevented, and insects do not go to it in the regular way, sterility may result. But in most of the flowers perforated there is an abundance of nectar, and insects which perforate flowers are very hasty in their visits, and therefore always leave some nectar, as can be seen in many cases where the perforator first robs the flowers, after which numerous other insects use the perforations to get nectar, while others again visit the flowers in a normal way. On the whole, I am inclined to think that sterility results more from the disharmonic action of perforating insects than is usually supposed....

Insects certainly show considerable intelligence in making perforations, or using those made by other insects. One of the most remarkable cases is that observed by Francis Darwin, in a cultivated variety of the everlasting pea, where the nectar is enclosed within a tube formed by the united stamens, at the base of which are two natural openings, one on each side, the left being a little the larger. Humble-bees which bite holes through the standard petal, always operated on the left-hand side, so as to reach the larger passage....

Muller records an interesting case where a female of Bombus terrestris entered a flower of Vicia Faba in the normal way. Being unable to get the nectar, the insect forced its head under the banner, and stretched its tongue as much as possible, but, being still unable to reach the nectar, it withdrew its head from the flower, and after cleaning its tongue with its forelegs, flew to another flower, where the same performances were repeated; but in the fourth she bit a hole in the corolla above the calyx....

Humble-bees show preferences in the flowers they perforate. Dr. Wm. Ogle states that in Switzerland he collected 100 flower-stems of a blue variety of Aconitum Napellus without finding a single flower perforated, while on 100 stems of the white variety, growing near by, every one of the open flowers had been perforated. This difference, Darwin thinks, may be due to different amounts of acrid matter contained in the flowers, the blue variety being distasteful to bees....

Why should insects perforate flowers? Darwin believes that, as a general rule, flowers are only perforated when they grow in large quantities close together ....Flowers grown in large masses are conspicuous, and therefore attract many insects; and, as the perforated flowers usually contain considerable nectar, the number of insects visiting the flowers at any one time is very large, and, as Darwin has shown, some of the nectaries are sucked dry: now, in order to save time, for the flowers would have to be probed for their nectar, the insect makes perforations. To this rule there are exceptions, as has been shown in some of the cases cited, where an insect, unable to get the nectar in a normal way, takes to perforating flowers. Muller, Loew, and others, have shown that there is a certain correlation between the length of the tongues of Hymenoptera and the flowers they perforate, as can be seen by consulting their tables on flowers and their visitors....

To summarize:—It has been shown that flowers with deep-seated nectar are often perforated, and that in most cases the perforations are made by insects which are unable to get at the nectar in a normal way; that Bombus mastrucatus is more addicted to this habit than any other European humble-bee; that there is a certain correlation in the length of the tongues of Apidæ and the flowers they visit in a normal way, but when this limit is reached, flowers are often perforated; that conspicuousness of plants may account for some of the perforations, but most of them are attributable to the non-adaptability of the insect to the flower; that the insect uses considerable ingenuity in perforating flowers, attacking them in close proximity to the nectary; that this is individual experience, and not inheritance on the part of insects; and that perforated flowers are not necessarily sterile, but are often quite productive.

St. Louis, Mo.

Always Mention your Post-Office, County and State when writing to this office. No matter where you may happen to be for the hour when actually writing—never mention anything but your permanent address. To do otherwise leads to confusion, unless you desire your address changed. In that case state the old as well as the new address.

HONEY PRICES.

Criticisms on the Quotations of Commission Men.

Written for the American Bee Journal

BY C. F. MUTH & SON.

The Editor has kindly sent us the letter of a correspondent to answer, to which we have no objections whatever, as the question has been asked us many times. The correspondent says:

"I would like to see an explanation of the quotations given in the AMERICAN BEE JOURNAL. For instance, Messrs. Muth & Son quote extracted honey at 5 to 8 cents per pound; but upon writing to them, they sent quotations asking about 10 to 12 cents for extracted clover honey. Now, why do they not quote correctly, 5 to 12 cents per pound? I do not mean Messrs. Muth & Son alone, but simply suppose it were they, or any other commission house. Why do they do it?"

Our quotations in the AMERICAN BEE JOURNAL and other bee-papers quote extracted honey at 5 to 8 cents on arrival. This means that we buy honey at that range; *i. e.*, good standard qualities, for which we have a pretty steady demand. Those quotations are known to our customers as, L L (a certain grade of Southern honey), fall honey, basswood, mangrove, clover and belle-flower honey, the last being from Cuba. It has a peculiar flavor of its own, but is a nice article, and having sold about 40,000 pounds since last spring, we believe to have created a demand for it. When re-ordering, the majority of our customers call for honey by the above names.

The above are our buying prices, but they do not hinder us from buying occasionally at 4 cents a pound, or even for less; or at 9 cents a pound, as the case may be. Our range of prices is from 5 to 12 cents a pound when selling. It would not have been proper to say, from 5 to 15 cents, although we do sell a single pound of the best clover honey at 15 cents, ½ pound at 8 cents. Our conscience does not trouble us any when we sell to one party a pound of honey at 15 cents, to another a barrel of the same quality at the rate of 10 cents, or five barrels at 9 cents a pound; and to another party 50 pounds in a tin can and crate for $7.00. We make no secret of our prices, because we prefer, at any time, to sell a barrel of honey instead of a pound. Most of our customers are manufacturers or dealers, and unless we give them a margin, we cannot expect to make the sale. It is our business to sell, and we are sorry to refuse the purchase of a lot because our stock on hand is too large. At our farm we have one class of customers only, and one price for all. There we do as other producers do, or should do, and dispose of all we can.

Cincinnati, O.

[The quotation of a certain sum "on arrival," is understood to mean that the persons so quoting it, pay that amount *on arrival*, and take all that arrives. That phrase is misunderstood, and should not be used, for Brother Muth has no intention of conveying that idea.

Of course the prices quoted in our Honey and Beeswax Market must be understood to indicate the prices that honey brings for the producer—not the prices at which the dealers sell it at retail.—ED.]

Scatter the Leaflets.—Look at the list (with prices) on the second page.

AMERICAN BEE JOURNAL
ESTABLISHED IN 1861 — OLDEST BEE PAPER IN AMERICA

ALFRED H. NEWMAN,
BUSINESS MANAGER.

Business Notices.

If You Live near one post-office and get your mail at another, be sure to give the address that we have on our list.

Hilton's new pamphlet on Comb Honey Production has been reduced in price to 5 cents. For sale at this office.

If you Lose Money by carelessly enclosing it in a letter, it is without excuse, when a Money Order, which is perfectly safe, costs but 5 cents.

Paper Boxes—to hold a section of honey for retail dealers. We have two sizes on hand to carry sections 4¼x4¼ and 5¼x5¼. Price, $1.00 per 100, or $8.50 per 1,000.

Preserve Your Papers for future reference. If you have no **BINDER** we will mail you one for 60 cents; or you can have one FREE, if you will send us 3 new yearly subscriptions for the BEE JOURNAL.

Yucca Brushes, for removing bees from the combs, are a soft, vegetable fiber, and do not irritate the bees. We supply them at 5 cents each, or 50 cents a dozen; if sent by mail, add 1 cent each for postage.

Please write *American Bee Journal* on the envelope when writing to this office. Several of our letters have already gone to another firm (a commission house), causing vexatious delay and trouble.

Pure Phenol for Foul Brood.—Calvert's No. 1 phenol, mentioned in Cheshire's pamphlet on pages 16 and 17, can be procured at this office at 25 cents per ounce. Not being mailable, it must be sent by express.

Apiary Register.—All who intend to be systematic in their work in the apiary, should get a copy of the Apiary Register and begin to use it. The prices are as follows:

For 50 colonies (120 pages)	$1 00
" 100 colonies (220 pages)	1 25
" 200 colonies (420 pages)	1 50

Photographs of Bee-Keepers.—The "medley" gotten up by E. O. Tuttle, containing the faces of 131 representative apiarists, and a printed sketch of each one, will be sent with the BEE JOURNAL for one year for $1.75; or we will present it *free*, by mail, to any one, for a club of three subscribers and $3.00.

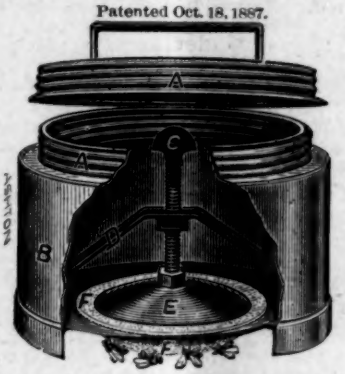
CLUBBING LIST.

We Club the *American Bee Journal* for a year, with any of the following papers or books, at the prices quoted in the **LAST** column. The regular price of both is given in the first column. One year's subscription for the American Bee Journal must be sent with each order for another paper or book:

	Price of both.	*Club*
The American Bee Journal	1 00	...
and Gleanings in Bee-Culture	2 00	1 75
Bee-Keepers' Magazine	1 50	1 40
Bee-Keepers' Guide	1 50	1 40
Bee-Keepers' Review	1 50	1 40
The Apiculturist	1 75	1 60
Canadian Bee Journal	2 00	1 80
Canadian Honey Producer	1 40	1 30
The 8 above-named papers	5 65	5 00
and Cook's Manual	2 25	2 00
Bees and Honey (Newman)	2 00	1 75
Binder for Am. Bee Journal	1 60	1 50
Dzierzon's Bee-Book (cloth)	3 00	2 00
Root's A B C of Bee-Culture	2 25	2 10
Farmer's Account Book	4 00	2 20
Western World Guide	1 50	1 30
Heddon's book, "Success,"	1 50	1 40
A Year Among the Bees	1 75	1 50
Convention Hand-Book	1 50	1 30
Weekly Inter-Ocean	2 00	1 75
Iowa Homestead	2 00	1 90
How to Propagate Fruit	1 50	1 25
History of National Society	1 50	1 25

Hastings' Perfection Feeder.—This Feeder (illustrated) will hold 2 quarts, and the letting down of the feed is regulated

Patented Oct. 18, 1887.



by a thumb-screw. The cap screws securely on. It is easy to regulate—either a spoonful or a quart—and that amount can be given in an hour or a day, as desired. By it the food can be given where it is most needed—just over the cluster. Not a drop need be lost, and no robber-bees can get at it. A single one can be had for 40 cents, or a dozen for $3.50, and it can be obtained at this office. Postage 10 cents extra.

Cork for Winter Packing.—Its advantages are that it never becomes *musty*, and it is *odorless*. Cushions can be made of cloth and filled with the cork, for winter packing. We can supply all orders now at 10 cents per pound. Or a seamless sack of it, containing 15 pounds, for $1.00.

Please to get your Neighbor, who keeps bees, to also take the AMERICAN BEE JOURNAL. It is now SO CHEAP that no one can afford to do without it.

Can You Do Anything that will do more to advance and defend the pursuit of bee-keeping, than to aid its Weekly Exponent and Defender? The AMERICAN BEE JOURNAL is the pioneer bee-paper of America, and is fully entitled to the active support of every progressive apiarist, for it works constantly and faithfully for the best interests of the pursuit. We therefore specially request all our readers to use their influence to double our subscription list during the coming autumn. Reader, will you please send us a new subscription with your renewal or before that time? A good weekly at one dollar a year is surely cheap enough to command patronage.

Red Labels for Pails.—We have three sizes of these Labels ranging in size for pails to hold from one to ten pounds of honey. Price, $1 for a hundred, with the name and address of the bee-keeper printed on them. Smaller quantities at one cent each; but we cannot print the name and address on less than 100. Larger quantities according to size, as follows:

	Size A.	Size B.	Size C.
250 Labels	$1.50	$2.00	$2.25
500 Labels	2 00	3.00	3.50
1,000 Labels	3.00	4.00	5.00

☞ Samples mailed free, upon application.

Clover Seeds.—We are selling *Alsike Clover Seed* at the following prices: $8.00 per bushel; $2.25 per peck; 25 cents per lb. *White Clover Seed:* $10.00 per bushel; $2.75 per peck; 30 cents per lb. *Sweet, or Melilot, Clover Seed:* $6.00 per bushel; $1.75 per peck: 20 cents per lb.—by express or freight.

Exchange.—We will accept Honey and Beeswax in exchange for Bee-Keepers' Supplies in any quantity. Those desiring to make a trade are invited to correspond with us, stating quantity, quality, and price, and the goods they want in exchange.

Alfalfa Clover.—For habits and cultivation of this honey-plant, see page 245. We supply the seed at the following prices:—Per lb., 22c.; per peck, $3.00; per half-bushel, $5.50; per bushel of 60 lb., $10.00. If wanted by mail, add 10 cents per pound for bag and postage.

We Supply Chapman Honey-Plant **SEED** at the following prices: One ounce, 40 cents; 4 ounces, $1; ¼ pound, $1.75; 1 pound, $3. One pound of seed is sufficient for half an acre, if properly thinned out and re-set.

The Convention.—The pamphlet containing the report of the proceedings of the Union Convention in Chicago, Ills., is published, and can be obtained at this office for 25 cents. Or bound up with the history of the International Society, and a full report of the Detroit and Indianapolis conventions, for 50 cents, postpaid.

Honey and Beeswax Market.

CHICAGO.

HONEY.—New crop arriving slowly, but demand is limited. White clover comb, 17@18c. Extracted, 7@9c.
BEESWAX.—22c.
Sep. 12. S. T. FISH & CO., 189 S. Water St.

CHICAGO.

HONEY.—For white comb 1-lbs., 18c. Very little inquiry for anything outside of 1-lbs., and when it is wanted it is at a lower price. Extracted, the best grades, 7@8c., and some held higher. Offerings are small and demand slow.
BEESWAX.—22c. R. A. BURNETT,
Sep. 12. 161 South Water St.

DENVER.

HONEY.—Colorado, new 1-lb. sections., 13@15c. Extracted, 7@8c.
BEESWAX.—20@23c.
Sep. 7. J. M. CLARK & CO., 1409 Fifteenth St.

NEW YORK.

HONEY.—We quote: Fancy white 1-lbs., 15@17c.; 2-lbs., 14@16c. Fair white 1-lbs., 14@16c.; 2-lbs., 13 to 15c. Extracted, white, 7½@8c.
BEESWAX.—23½c.
Sep. 17. THURBER, WHYLAND & CO.

NEW YORK.

HONEY.—Fancy white 1-lbs., 17@18c.; off grades, 15@16c. Fancy white 2-lbs., 13@14c.; off grades, 12c. Extracted, white, 7½@8c. New crop is arriving and demand is good.
BEESWAX.—23@23½c.
HILDRETH BROS. & SEGELKEN,
Sep. 5. 28 & 30 W. Broadway, near Duane St.

SAN FRANCISCO.

HONEY.—White 1-lb. sections, 12@15c.; 2-lbs., 11 to 14 cts.; amber, 7@9c. Extracted, white, 5½@6c.; light amber, 5@5¼c.; amber and candied, 4¼@4½c. Receipts light and market firm for best qualities.
BEESWAX.—17@21c.
Aug. 25. O. B. SMITH & CO., 423 Front St.

DETROIT.

HONEY.—Best new white comb, 15@16c., with little in sight and slow sales. Market is low, and bee-keepers will do better to hold honey until approach of cold weather.
BEESWAX.—21@22c. Supply limited.
Aug. 22. M. H. HUNT, Bell Branch, Mich.

CINCINNATI.

HONEY.—We quote extracted at 4½@8c. per lb. Comb honey, 12@16c. Demand slow.
BEESWAX.—Demand is good—20@22c. per lb. for good to choice yellow, on arrival.
Sep. 18. C. F. MUTH & SON, Freeman & Central Av.

KANSAS CITY.

HONEY.—Choice 1-lb. sections, 18c.; dark 1-lbs., 14c.; 2-lbs., 16c.; dark, 13c. White extracted in 60-lb. cans, 8c.; amber, 7c.; in barrels and kegs, 5@8c. Demand good, prices firm, and stock light.
BEESWAX.—None in market.
Aug. 29. HAMBLIN & BEARSS, 514 Walnut St.

NEW YORK.

HONEY.—We quote: Fancy white 1-lb. sections, 17½@18c.; 2-lbs., 14½@15½c. Fair 1-lbs., 14½@15½c.; 2-lbs., 11@12c. Extracted, fancy white clover, 7½@-½.
Sep. 13. F. G. STROHMEYER & CO., 122 Water St.

BOSTON

HONEY.—We quote: New 1-lb. sections, 18@20c.; 2-lbs., 14@16c. New extracted, 8@10c.
BEESWAX.—25 cts. per lb.
Aug. 24. BLAKE & RIPLEY, 57 Chatham Street.

SAN FRANCISCO.

HONEY.—We quote: Extracted, white, 5½ cents; light, 5¼c.; amber, 4½@5c. Comb, 1-lbs., 12@14c.; 2-lbs., 9@13c., as to quality. Arrivals not large, and supplies held firmly.
BEESWAX.—Dull at 19@22c.
Aug. 20. SCHACHT & LEMCKE, 122-124 Davis St.

KANSAS CITY.

HONEY.—We quote: New white 1-lbs., 18c.; light 1-lbs., 16c. California white 1-lbs., 18c.; light 1-lbs., 16c.; white 2-lbs., 16c.; light 2-lbs., 14c. Extracted, white, 8c.; amber, 7c.
BEESWAX.—18@20c.
Sep. 5. CLEMONS, CLOON & CO., cor 4th & Walnut.

ST. LOUIS.

HONEY.—We quote: Extracted, 4½@5½c.; if in cans, 8@9c. White clover comb, 14@15c. Market is steady and receipts light.
BEESWAX.—21c. for prime.
Sep. 6. D. G. TUTT & CO., Commercial St.

MILWAUKEE.

HONEY.—New white 1-lb. sections 18c., and very fine, 20c.; 1-lbs. 15@18c.; old 2 and 3 lbs., not salable, 12½@14c.; dark 1-lbs., old or new, 12@13c. Extracted, new white in kegs and ½-barrels, 8@9c.; old, in same packages, 7@8c.; in tin, 8@9c.; dark in barrels or ½-barrels, 6@6½c. Arrivals of new crop small; demand not urgent, and only very moderate trade.
BEESWAX.—22@25c.
Aug. 31. A. V. BISHOP, 142 W. Water St.

Conventions.—The time for holding Bee-Keepers' Conventions has now arrived, and we cannot give any better advice than this: Let each one attend who can do so, and take part in making these meetings interesting and instructive. If you have not already obtained the "Bee-Keeper's Convention Hand-Book," do so at once to post yourself up on how to conduct such meetings correctly. It contains a simple Manual of Parliamentary Law and Rules of Order for the guidance of officers and members of Local Conventions—Model Constitution and By-Laws for a Local Society—Programme for a Convention, with Subjects for Discussion—List of Premiums for Fairs, etc. Bound in cloth, and suitable for the pocket. Price, 50 cents. We will club this book and the AMERICAN BEE JOURNAL for one year for $1.25. It also contains a lot of blank leaves on which you can note important matters as they come up. Do not fail to send for a copy of it.

We Want 20,000 subscribers. Out of the 300,000 bee-keepers in America, certainly this is not an extravagant desire! It is only one out of every fifteen! We confidently ask those who appreciate the AMERICAN BEE JOURNAL, to show it by sending us one or more new subscribers. We will give them full value for their money.

Simmins' Non-Swarming System.—We have a few of these books left, and we will club them with the AMERICAN BEE JOURNAL for one year, both postpaid, for $1.25. The subscription to the BEE JOURNAL can be for next year, this year, or may begin anew at any time.

We Have some copies of the old edition of Cook's Manual left, which we will sell at the old price, $1.25. The price of the new edition is $1.50 per copy; a notice of which may be found on page 579.

A Home Market for honey can be made by judiciously distributing the pamphlets, "Honey as Food and Medicine." Such will create a demand in any locality at remunerative prices. See list on the second page of this paper.

Queens.—We can mail a Tested Italian Queen (bred for the best results as well as for beauty) for $2.00; Untested Queens $1.00 each, or $9.00 per dozen. Orders solicited.

We will Present a Pocket Dictionary for two subscribers with $2.00. It is always useful to have a dictionary at hand to decide as to the spelling of words, and to determine their meaning.

Give a Copy of "Honey as Food and Medicine" to every one who buys a package of honey. It will sell lots of it.

The Institution which has done so much to foster art in America, "The National Academy of Design," has its history well told by A. S. Southworth, in the opening article of *Frank Leslie's Popular Monthly* for October. It is illustrated with views of the building, and portraits of its Presidents. The stories and adventures in the number are all attractive and well illustrated, and some, like "Venezuela and Great Britain," by Almont Barnes, of no little value.

Your Full Address, plainly written, is very essential in order to avoid mistakes.

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Pure Italian Bees,

ONLY $3.00 per Colony QUEENS, $1.00.
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FOR taking frames out of hives, or moving them in any way desired. It is made of Japanned iron, and can be utilized in many ways. It has a long claw for loosening frames, and a hook which may be used for carrying other frames besides the one held by the Pliers. Price, 40 cents., by mail. By express, 30 cents.

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FOR SEPTEMBER is specially devoted to "Food and Its Relation to the Wintering of Bees." If you wish to know the views of Mr. Heddon, J. H. Martin, Dr. C. C. Miller, L. Stachelhausen, Dr. L. C. Whiting, R. L. Taylor, and O. O. Poppleton, read this Number.

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